~~R0156 Heavy Equipment Operations~~
Training

Agenda 38-43

Agassiz NWR
Narrative Reports
1938 - 1982

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REFUGE ACTIVITIES FOR
THE FISCAL YEAR ENDING
JUNE 30, 1938

PREAMBLE

A brief history of the circumstances and conditions encountered in this first year of actual restoration and development work in the Mud Lake Refuge is essential in the formulation of this report. The Bureau had preliminary studies and surveys made of the area back in the year 1930; but afterwards encountered many difficulties in the aquisition of the land, which delayed for several years any progress on the project. Prior to July 1, 1937, we have no record of an annual report having been submitted from the field relative activities in the area, or previous to the period covered by this report.

Inquiries made by the author provided the information that CCC heavy dragline and other earth moving equipment worked on the Mud Lake Refuge for the first time on May 12, 1937. About that same date the firm, McGary Brothers, started their dragline on work on a Mud Lake Refuge PWA contract being supervised by the Agricultural engineers. Progress with machinery during the balance of May 1937 was reported difficult, because of late snows, and rainfall, and these adverse weather conditions still prevailed on the author's June 1937 arrival, and assignment to the Mud Lake project.

On tours made immediately after this arrival the existence of a rather complex farm tenant situation in the Refuge become evident. None of the former land users or land owners had made any preparations or attempts to vacate the land which had been aquired for the Government

through land aquisition proceedings conducted by the State of Minnesota. Stipulations in the agreement between the State and the former land owners specified that former land users had no right to farm crops within the area during 1937. Only former land owners, were under the existing agreement, permitted to farm in the area during 1937, and after the crops were harvested the lands were to be vacated entirely. The agreement further stipulated and allowed the Government during 1937 the right to proceed with construction, restoration and development work without being limited or restricted in anyway whatsoever, in so far as the projects area was concerned. The contractors organization was the first to encounter opposition from farmers, who protested activities through or near fields where volunteer crops of a questionable value were growing. These protests were without justification in every case, one farmer even objected, because CCC desired to cross a field of quack grass. In that case CCC deferred work until the farmer found it convenient to cut and rake the quack grass, which was considered by the farmer as valuable winter sheep feed.

Conditions were sufficiently dry by June 15, 1937 to permit heavy equipment earth work any where in the area principally because of the many previously dry years. Peat fires again flared and the dry weather seemed to have returned to stay. The one month of extremely dry weather, ideal for restoration work, but severe on ducks, continued until July 13, and then it rained that night, and continued to rain for a total of three days and four nights. This rain brought, it was variously reported, about 4 to 5 inches of rainfall. This first heavy rain was followed by other heavy rains, in all the total July

1937 rainfall was variously reported as having netted 15 to 20 inches.

These continuous heavy rains flooded all Mud Lake Refuge construction activities, and also forced all former land owners still in the area to abandon their crops. Many of the former land users and land owners still in the area were forced to abandon their home temporarily at least. Many, who had planed on moving their home from the area during the summer, were compelled to leave the buildings until freeze-up, because of the wet moving conditions.

The sad part about these farmers, particularly those who were legitimately in the area, was that they all, with money received from the Government for their land, had invested heavily in seed which they had planted within the Mud Lake Refuge, and then because of extreme high water many were prevented from harvesting. The poor farmer not only lost his crop, but his heavy seed investment as well. Therefore, it would have been a good turn to the farmers if they had not been permitted by the agreement to remain the extra season in an area where farming was such a gamble.

Readers let it be understood Mud Lake Refuge was flooded during the summer of 1937, not because of work done on the Bureau's work projects, but because inadequate drainage ditches. Those old drainage ditches were inadequate, when first built, and more so of late years, because of heavy growths in the bottom of the ditches. The drainage was in 1937 in no way obstructed by the Bureau's construction of dykes in the drainage ditches, yet in 1937 the highwater remained at elevation 1140 for many days.

Frequent high water periods and floods made farming a hazardous occupation in the Mud Lake area, and because of this constant danger

The farmers were fortunate in having been resettled by the Farm Security Administration. After the 1937 high water and flood many of the farmers returned to reside within the area until freeze-up. The State made no reservations regarding buildings, they having awarded all of the buildings and improvements to the former land owners. The salvage from the old buildings would have been worthless, so in the private citizen's removal of the old buildings off and away from the Refuge, the Government was spared the labor and expense of disposing of the shacks.

Late in November, freeze-up period set in, and soon ground became firm enough to permit moving, and as several were anxious to become settled in their new Farm Security Administration homes, a general exodus of farmers with their buildings, and belongings, departed from the Mud Lake Refuge. We were quite pleased with the attitude, and cooperation shown by farmers, who were the first ones to vacate the area. After the ambitious, reliable families departed about 22 families remained behind, and these laggards were mostly former land users, who were not reliable or responsible. Relief agencies, and the Farm Security Administration were prevailed upon, and lent all the assistance possible, but it was through our insistent urgingthat we succeeded in vacating the area of most of the remaining families by January 1, 1938. A few families, who were considered Farm Security Administration clients were permitted to remain on the area after the scheduled date, because that Federal agency had interceded on their behalf. Those few families were again a problem in the early spring of 1938, because we found it necessary to assist in their removal from the area, because of pending high water.

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Numerous heavy rainfalls occurred in the early spring of 1938. On May 5 and 6, 1938 a freak blizzard brought a heavy blanket of snow. This snow had not melted when another heavy rain followed to create the heaviest run-off experienced in this locallity since 1919. On May 7, 8, and 9 of 1938 floods of a tremendous magnitude were inundating entire farms of 30 or more miles east and south of Mud Lake. Farmers in the communities of Gatzke, and Grygla, Minnesota were misled into believing that restored Mud Lake, and the Bureau was responsible for those floods outside the Refuge. On May 9 water in Mud Lake was at or near elevation 1140, yet on May 11 aroused farmers were led to the Ditch 11 dyke, and while there destroyed the structure. Destruction of this dyke in no way relieved the situation east of the Refuge, the accomplishment was, conditions below Mud Lake were made worse. Why some of the supposedly more intelligent person of the two communities east of the Thief and Mud Lake Refuges were induced to participate in May 11 incident is difficult to ~~believe~~ conceive. One seemingly logical explanation for their actions was or is their fear of isolation. Business men of the communities have felt and realized that the exodus of people from territories surrounding their communities will in time reduce their business. Declines in population have affected their business, and as future local improvements for their communities depend on the surrounding density of population we attribute their fear of isolation as one reason why they are opposed to the Mud Lake project.

The dyke incident proved a near calamity in so far as Mud Lake Refuge was concerned. Two hundred thousand birds were conservatively estimated as on the area at that time. Many were nesting and others would remain to nest depending on our ability to hold the area attractive to birds through the retention of the water impounded. The south

one third of Mud Lake was lost through the sudden release of water by farmers opening the dyke. The north two thirds of the Lake would have disappeared through the same breech made by the farmers had not the CCC been on hand for the timely repairs made to the Ditch 11 spoil bank, which was serving as a dyke for the north two thirds of Mud Lake. This spoil bank was opened and lowered at several points through erosion due to extreme high water, and it was quite a battle for CCC with sand bags, piling, and heavy equipmentto close the openings and elevate the spoil bank sufficiently for the retention of water in the north two thirds of Mud Lake. Camp SP-1, Minnesota succeeded in averting the calamity of thousands of nesting birds being stranded without water in Mud Lake and its surrounding marshes, and for this, the camp should be commended. The Bureau likewise deserves to be complimented on the progress made on the Mud Lake Refuge project for in the period of one year an area which offered but little or no inducement for waterfowl was partially restored, and now a haven for one hundred thousand migratory birds with young fowl roughly estimated at ten thousand.

1. WILD LIFE
MIGRATORY WATERFOWL

Prior to period covered by this narrative the Mud Lake territory was being aquired by the State of Minnesota for the Bureau of Biological Survey. Prior to and during the aquisition period the Bureau relied on reports by local citizens for their previous information on waterfowl and up land game conditions in the area. The area in its former natural state we are so informed was prior to drainage an ideal waterfowl resting, breeding, and nesting territory.

The spring migration of 1937 over Mud Lake Refuge brought species as follows: Mallard, Pintail, Shoveler, Bald Pate, Blue Bill, Ring Neck, Red Head, Blue Wing Teal, Green Wing Teal, Coot, Grebe (Horned), Pied Bill Grebe, American Merganser, Hooded Merganser, Red Brested Merganser, Snow and Blue Geese, Canada Goose. The above migratory waterfowl were reported as having been observed in flight over the area. Relatively an area such as Mud Lake would have been wet following the late snows and rains in the spring of 1937, but the extremely dry previous years created a dry condition, and area which soaked up all surface moisture much like a sponge. Apparently very few birds found any feeding and nesting inducement at Mud Lake during the 1937 season because the number of birds nesting on the area were estimated at about 600 pairs. Blue wing teal were during that season reported as most numerous followed by mallard, pintail, and shovelers.

Rainfall in July, August, and early September of 1937 created extreme highwater conditions that inundated thousands of acres. These inundated lands included many acres of abandoned unharvested barley fields that offered a special inducement for waterfowl to "stop-over"

at the Mud Lake Refuge on their southward 1937 migration. These lands remained inundated during the entire migration period, and because of the mild weather a large number of birds remained on the area for a considerable length of time. Visiting Bureau officials conceeded that our estimated 100,000 visiting birds in the area during the 1937 fall migration was a conservative figure.

The spring migration of 1938 brought even more waterfowl to the Mud Lake Refuge. Private citizens well posted on waterfowl state our spring migration was the heaviest since the area was drained in 1913. Prior to 1913 there were even more migratory birds in the Mud Lake vicinity so the area in its formal natural state surely was a duck paradise. Our aim is to restore Mud Lake to its former natural state, and older persons familiar with the area as it was prior to drainage contend from observation that the Mud Lake was during the 1938 spring migration approximately close to the Lake's former prior to drainage elevation. Waterfowl began arriving at an early date in the spring of 1938. On March 17, 1938 many of our waterfowl had arrived. Many waterfowl had laid their eggs, and were setting on May 5, 1938. We saw evidence where early nests had been swamped or carried away by high water of May 15, 1938. Later we saw different broods of the same species with a great variance in the size and ages of young to indicate that waterfowl losing their nests because of highwater later rebuilt nests, and laid a second clutch of eggs to successfully hatch a brood after flood waters subsided.

In comparison with the 1937 spring migration the spring migration of 1938 was much heavier in the Mud Lake Refuge. A greater variety of birds were also observed in the 1938 migration. Migrant birds observed in our recent spring migration are listed as follows:

Mallard, Pintail, Shoveler, Bald Pate, Gad Wall, Canvas Back, Blue Bill, Red Head, Ring Necked Duck, Blue Wing Teal, Green Wing Teal, Black Duck, American Merganser, Hooded Merganser, Red Brested Merganser, American Goldeneye, Ruddy Duck, Buffle Head, Lesser Scaup, Holboell's Grebe, Horned Grebe, Eared Grebe, Pied Bill Grebe, Coot, Canada Goose, Snow Goose, Blue Goose, Lesser Canada Goose, Common Loon, Double Crested Cormorant, Pelican, Scoter White Winged, Swan, whistling.

About 40 whistling swan visited the Refuge during the 1938 R spring migration, and remained about 2 weeks on the Refuge.

Nesting birds this period are as follows: Mallard, Pintail, Blue Wing Teal, Green Wing teal, Shoveler, Baldpate, Black Duck, Gadwall, Canvas Back, Red Head, Lesser Scaup, Ruddy Duck, Pied Bill Grebe, Horned Grebe, Eared Grebe, Holboell's Grebe.

Buffle Head were here all during the nesting season, and on August 8, 1938 what appeared to be young Buffle head with female were seen south of the new Mud Lake Administration buildings, indicating nesting here by this species.

Shore birds and other aquatic bird life reported as nesting in the area: Black Crowned Night Heron, American Bittern, least Bittern, Great Blue Heron, Sora Rail, Virginia Rail, Fill Deer, Lesser Yellow Legs, Greater Yellow Legs, Hudsonian Godwit, Pectoral Sandpiper, Spotted Sandpiper, Black Tern, Franklin's Gull, Wilson Phalarope.

A pair of Sandhill Cranes were seen and reported on the Refuge during the 1937 spring migration, but the nesting by these birds in the area is doubtful.

Upland game birds utilizing the Mud Lake Refuge for nesting are listed as follows: Sharp-tailed grouse, Pinnated grouse, Ruffed grouse, Hungarian partridge, Ring-necked pheasant.

Homesteaders reported prairie chickens were present in abundant number in Mud Lake Refuge back in 1913, 1914, and 1915. Hunters traveled hundreds of miles to come here to hunt. Now the birds are here in only limited numbers. Prairie chickens present in one flock of thirty was the largest number observed on the Refuge. These were observed late last fall in the north west part of the area. There are a few Ruffed grouse, but such birds are not very numerous. The Hungarian partridge are more numerous, and were in the area until late last winter.

Fur bearers on the Refuge, and observed during the fiscal year are as follows: Coyote, Red Fox, Skunk, Mink, Weasel, Muskrat, Snow Shoe Rabbit, Jack Rabbit, Porcupine, Wood Chuck.

None of the above predator animals are numerous enough to become a serious problem and menace to waterfowl. In time the predators will, however, become numerous enough to warrant the assignment of a Government hunter to the area for periodical hunting.

Predator birds on the Refuge, and observed during the fiscal year are as follows: Crow, Great Horned Owl, Duck Hawk, Eagle.

A duck hawk, rather rare, was observed on August 15, 1938 power diving on waterfowl in the pot hole areas south of the Mud Lake administration buildings. A few arctic owl were observed during the winter of 1937-38. On nesting crows, we in the spring of a 1938 utilized CCC for the destruction of their nests.

Big game on the Mud Lake Refuge is also present. Deer, Bear, and Moose is the extent of our big game. Late summer of 1937 a Minnesota game warden spied a big bull moose near the old Wilson School site. In the Tamarac swamp our biologist found evidence of a family of moose having occupied the area. Again this summer moose tracks are plainly in evidence in the area. Deer are also plentiful in the Refuge. We have not seen any bear on the Refuge but black bear have been seen on land abutting our area, and neighbor farmers, who have had their aparies destroyed by bear, have informed us that the bear when hunted takesrefuge in our area.

2. USE MADE OF REFUGE

Nesting Islands:

In the period of 1930 to 1937 peat fires burned profusedly more so than in previous years, because of the extreme drought in the period 1930-1937. A peculiar trait in the peat fires was the tendency to burn deep in places and in other places with in the same area the peat did not burn at all. This tendency provided the Refuge with a series of thousands of peat hummocks surrounded by water filled burnouts. Fortunately during the 1938 nesting season we were successful in keeping the burnouts filled with water to the extent we had thousands upon thousands of peat hummock islands occupied by nesting birds of all species.

Shelters:

During the past fiscal year no shelters of the approved type were built in the Refuge. At present there is an abundance of cover and shelter for game in the Refuge, so the provision of additional

shelters such as are needed in open country are not required. During the coming year we will build several of the conventional feeding shelters, which CCC will maintain throughout the on-coming winter.

Ponds:

Numerous shallow ponds were created by CCC in the construction of roads and trails. Such ponds have proven very attractive to birds. In fact during the 1938 nesting season every small pond, pothole, or burnout in which there was water standing, a large number of birds were present. Concentrations of nesting bird were present more so around the small bodies of water than and in the expansive bodies of water. Because ponds, pot holes, and burnouts are so numerous on the Mud Lake Refuge we thereby account for the large number of nesting birds in the Mud Lake Refuge. Twenty five thousand nesting migratory waterfowl would be an ultra conservative estimate of the number of birds that hatched approximate fifty thousand young ducks now on the Refuge. 1935

Haying and Grazing:

No haying and grazing or share cropping permits were issued during the fiscal year.

Recreational:

There being no facilities for recreational activities within the areaat present we had no picknicking, or camping on the area. We have however selected and recommended an area which can be developed for recreational use. The adaptable tract is known to people in the vicinity of the Refuge as the Blue Grove. It is located in Section 25 of Mud Lake Township, and the heavy stand of hardwood timber in the tract selected should, when developed, become a popular recreational area.

3. PLANTINGS

Nature during the past fiscal year solved our need for a planting program. Many fields contained volunteer crops of barley, rye, and sweet clover to off set any great need for extensive plantings, which in turn provided food needed by numerous birds on the Refuge. Aquatic plant life is returning in quantities, and with a rapidity surprising to the many, who have visited the Refuge. Upland, Low land, and water smart weed, is abundant already. Other aquatic plants are returning so in time the area will of its own accord restore itself providing maintenance of water in the area is assured. After domestic small grain perpetuation is discontinued our need for sago pond weed, and wild rice will be realized. The future problem in aquatic planting in the area will therefore to a certain extent be chiefly consist of sago pond weed, and wild rice planting.

4. PREDATOR CONTROL

Private citizens when they resided within the Refuge hunted and trapped predators to the extent the predator control problem has not created a menace to date. Wood-chuck, and skunk are chiefly the small animals now found in the area. Skunk are becoming more numerous and will be the first predator requiring attention. None have been taken but fall and early winter trapping will become a CCC project. The extent of our predator control to date had been the destruction of nests built by crows.

5. REFUGE IMPROVEMENTS

CCC:

Briefly the CCC has nearly completed the construction of the

New Mud Lake Administration buildings. Five miles of dyke was completed involving 121,000 cubic yards of earth fill. Three rip rap spillways were also completed. Ten mile of new swamp land trail was constructed, and 14 mile of patrol trail on drainage ditch spoil banks were completed. CCC assisted in boundry surveys and all other surveys made in the area during this period. The 18000 fence post received were peeled and ricked for seasoning. Towers (2) were hauled from rail head to site for erection. Fifteen miles of truck trails were graveled. Many miles of drainage ditches were cleared of dense growth. A portion of the Mud Lake bottom land was cleared. In the first year CCC was on the Refuge a stupendous amount of work was accomplished considering the working conditions encountered. For a more detailed report or accounting of CCC activities within the Refuge during the past year, interested persons should read the July 1 1937 to June 30, 1938 resume of CCC activities in the Mud Lake Refuge by Camp SP-1, Minnesota.

P.W.A.:

The firm McGary Brothers, were engaged on a P.W.A. contract during the fiscal year involving the construction of about 10 miles of dyke and 6 or 7 mile of county highway as built through the Mud Lake Refuge. For more detailed information on the contractors work within the Mud Lake Refuge, may we refer you to the Bureau of Agricultural engineer's report on the contractor's activities. Agricultural engineers supervised the work and provided the plans for P.W.A. work in the Mud Lake Refuge.

Regular Funds:

Permanent refuge farm equipment was aquired through an allotment of regular funds provided for the purpose. Barley seed was purchased with similar funds and in combination with the use of the farm equipment 440 acres was planted to barley in the Refuge. Maintenance work such as providing fire breaks around the sparse small hardwood groves in the refuge was another use of the Refuge equipment.

C. SCIENTIFIC PROGRESS

A special study has been made in but one problem and that is in connection with an important artificial improvement that can be made for ducks. Providing nesting facilities for ducks is a problem with which we are not very much concerned, because there is such an abundance of ideal nesting islands within the Refuge. Unburned peat hummocks have provided all of the nesting islands this area will ever need. Popular nesting places for ducks is therefore the one improvement we can provide with a minimum amount of labor and expence.

The question on what is a popular resting place for ducks is the answer we can present. This answer does not limit us to one particular type of resting island, because we have found from continual observation two distinct types of resting islands are extremely popular among ducks of all species and ages.

The resting islands we are recommending for artificial development. We have found that all large ponds or pools should

have several islands located in the shallow water portions. The islands need not be large, preferably 25 feet or less in diameter for the portion that extends above the water. The portion that extends above the water should not be over a foot above water and the slope from the dry part of the island to the water's edge, and from this edge to deeper water should be very gradual. The gradual [illegible], because duck seem to enjoy waddling in shallow water during the transition from water to land. These small low islands located in areas where the water is not much over one foot in depth, and with such a gradual slope eliminates to a greater extent the danger of being destroyed by the ice action of northern climes.

Small islands as described, and so constructed of earth are made even more popular when covered with gravel. A temporary means for materials with which to construct similar islands is to utilize old hay stacks or preferably barley straw stacks to provide equally popular islands with such materials An old hay or straw stack abandoned and surrounded by water can be leveled down to the popular size as indicated above. Or new stacks in winter months can in northern states be loaded and hauled over ice in the trucks or as deposited where water was shallow, and in the spring an island as sought by ducks will be thus provided. Private citizens in vicinity of the Mud Lake Refuge are glad to dispose of old straw stacks, which otherwise are burned so the problem of finding straw is not important. Straw islands are temporary, being good for only two to four years, but nevertheless worthwhile.

7. LAW ENFORCEMENT

During the fiscal year a continual traffic of private citizens in and out of the Refuge, bent on removing their personal property and effects from the area, made detection of trespassers difficult. Then too, we had the contractor, McCary Brothers, organization to contend with in so far as their continual entering and leaving the Refuge was concerned. CCC enrollees and personnelwere also continually in the area, and no violations were witnessed or in evidence. We too were fortunate in that we have a Minnesota State game warden district supervisor, who has consented and offered us the cooperation of his Middle River, Minnesota deputy warden Mr. Shields, and other wardens in the detection and apprehension of game violaters. These State wardens have been around, and in the vicinity o. the Refuge on numerous occassions, and as we did, they found no game violations to report.

8. WATER CONDITIONS

Flood waters of the summer of 1937 created extreme high water conditions within the area, anddespite every effort made to drain the area for construction work in connection with restoration and development activities. Extensive areas remained inundated during that summer, and fall. Twenty inches of rain fall in July and the heavy rains in August and September persisted in keeping areas inundated despite our efforts to drain particular certain work areas.

On August 15 of last summer Thief Lake filled and overflowed the Thief Lake dam crest, which was at elevation 1160. At that same time, the elevation of water in Mud Lake was at 1140, and no

structures or water controls were in the ditches to in any way obstruct the flow of water from the Mud Lake Refuge. Every drainage outlet from Mud Lake was open and still water remained at elevation 1140 for a period of three weeks.

Enough water remained in Mud Lake during the winter months to form a layer of ice over the entire bottom lands of the lake. Early spring 1938 rains created enough run-off to cover, the ice that had formed, with sufficient water to offer a resting place for the many thousands of early migrant duck and geese, and also swans that arrived in the middle andlater part of March. Water in Mud Lake was at no time above the 1139.76 elevation from March 1 to May 1 1938. Heavy rains occurred early in April and on April 12 both controls were opened to capacity. Heavy rains occurred on April 23, 24, 25, 26, and on May 5 and 6 a blizzard brought a heavy snow followed by other heavy rains, that created flood conditions as bad or worse than occurred in this territory since 1919. Extreme flood and high water conditions that occurred in territories 30 to 40 miles east of Mud Lake were amplified and used by agitators against the Mud Lake project to the extent that farmers were misled into the destruction of one of the Mud Lake water control structures. Destruction o. the Ditch 11 water control did not relieve conditions east and above the Refuge, because water impounded in the Mud Lake Refuge had no effect upon the drainage of the uplands. The sudden release of water by private citizens, however, did endanger private property below Mud Lake Refuge. Granted there was high water below Mud Lake Refuge, but this was considered by some as a normal am ount of high water. Tom Severson, a relief recipient still resided at the

Refuge west entrance Holt bridge location, and remarked that he had seen water on other occasions higher below Mud Lake Refuge than it was in May and June 1938. Therefore, private citizens below Mud Lake Refuge may be thankful that the Bureau had the Thief River control and other dykes and spills in tact.

Water in the north two thirds of Thief Lake was held by repairing wash-outs in the spoil bank road along north side of ditch. This work was done to save the Lake for the many birds present in the area. Elevation of the north two thirds of Mud Lake has been maintainedat elevation 1139.6 since the lower or south one third of Mud Lake was released by private citizens.

9. INTERESTING INFORMATION

Concerning the Mud Lake Refuge and its purpose. The consensus of opinion among visiting Bureau official is that we have in this area one of the finest Refuges in the United States. Many contend we have the best duck factory of them all. Considering the fact that Mud Lake Refuge came into existance hardly more than a year ago, certainly a great transformation has taken place upon this area. During the transition of the area from marginal or sub-marginal farming to a thriving summer bird nesting paradise, many important and interesting happenings transpired, but to account for all would make this report volumous, and interesting. The area is still in its early stages in so far as ultimate development is concerned, and in future years there will be even a greater opportunity for intensive work, development, and study. As the project progresses so will the scientific and toward production of birds and wild life.